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UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Electrification Administration
Technical Standards Committees
(Electric)

Supplement No. 3, April 1983, to
REA Bulletin 43-5
LIST OF MATERIALS ACCEPTABLE FOR USE ON
SYSTEMS OF REA ELECTRIFICATION BORROWERS

The attached pages for the "List of Materials Acceptable for Use on Systems of REA Electrification Borrowers" are those which have been revised by action of the Technical Standards Committees during the months of October through March 1983. The following changes should be made in order to keep it up to date. Pages with a colon between are on the same sheet, both being changed.

<u>Add</u> <u>New Page</u>	<u>Remove</u> <u>Page</u>	<u>Add</u> <u>New Page</u>	<u>Remove</u> <u>Page</u>
b	b	U ax	U ax
c	c	U gk(1.2)	U gk(1.2)
k(3)	k(3)	U gn(2):U gn(3)	U gn(2):U gn(3)
l-3	l-3	U he(3)	U he(3)
l(1):l(1.1)	l(1)	U he(3.1)	U he(3.1)
m-1	m-1	U hp(5)	U hp(5)
n	n	U hv(1)	U hv(1)
z-4	z-4	U hy(1):U hy(1.1)	U hy(1):U hy(1.1)
z	z	U ja(1.1)	U ja(1.1)
ai-3:aj	ai-3:aj	U ja(2)	U ja(2)
an-3.1	an-3.1	GP-8	GP-8
ax-1	ax-1		
be-1	be-1		
be(2)	be(2)		
bj	bj		
br	br		
cu	cu		
cy-1	cy-1		
cy-2	cy-2		
cz	cz		
eb	eb		
gw-2	gw-2		
gw(1):gw(2)			
gy-2	gy-2		
gy(1):gy(2)			

CURRENT SERIAL RECORDS

AUG 15 '83

U.S.D.A.

a - Insulators, pin type
(Radio-freed)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
*Brown Boveri Electric 27R 24.9/14.4 kV ANSI Class 56-1	1235 5/27/82	To obtain experience.
*McGraw-Edison NP2T8 24.9/14.4 kV ANSI Class 56-1	1205 2/5/81	To obtain experience.

*Does not have metal thimble.

NOTE: Post insulators (Item ea) may be substituted for the crossarm pin (Item f) and pin insulator (Item a) for both small and large conductor distribution drawings shown in REA Forms 803 and 804 at the option of the owner.

b
April 1983

b - Pin, pole top, steel

DISTRIBUTION

	<u>7.2/12.5 or 7.62/13.2 kV</u>	<u>14.4/24.9 kV</u>
Pin length, inches :	20	20
Thread diameter, inches:	1	1-3/8
Hole spacing, inches :	8	8
REA Specifications :	D-3	DT-3
Chance	2199	2195
Dixie	D-2172	D2195
Joslyn	J740	J720
Kortick		K8086
McGraw-Edison	DP19P6	DP19P5
Utilities Service	36606F-REA	36652

Pins listed below have $4\frac{1}{2}$ " offset
which eliminates the use of Item cs

Joslyn	J25179
McGraw-Edison	DP28P1
Utilities Service	36549

TRANSMISSION

Type :	1-1/8" solid steel	Channel
Pin length, inches :	24	24
Thread diameter, inches:	1-3/8	1-3/8
Hole spacing, inches :	8	8
REA Specifications :	None	DT-3
Chance		2196
Dixie	D2125	
Joslyn		J824
Kortick		K8087
McGraw-Edison		DP19P8
Utilities Service		36653F

NOTE 1. Pole top bracket (Item eb) and post insulator (Item ea) may be substituted for pole top pin (Item b) and pin insulator (Item a) for both small and large conductor distribution drawings shown in REA Forms 803 and 804 at the option of the owner.

2. Flared type pins may be mounted with either side against the pole.

c - Bolt, machine

Applicable Specifications: Edison Electric Institute
Specification TDJ-1 1969,
"Specifications for Steel
Bolts and Nuts"

Applicable Sizes : 1/2 inch diameter, 6 through
10 inch length

5/8 inch diameter, 6 through
24 inch length

3/4 inch diameter, 6 through
26 inch length

7/8 inch diameter, 6 through
28 inch length

The following manufacturers have shown compliance with the applicable specifications for machine bolts:

A. B. Chance Company
Dixie Electrical Manufacturing Company

Hughes Brothers
*Joslyn Manufacturing and Supply Company
Kortick Manufacturing Company
*McGraw-Edison
Portland Bolt & Manufacturing Company
Utilities Service Company



*"Static proof" design available.

d
October 1982

d - Washers

Flat Steel

Size, inches:	2 1/4 x 2 1/4	3 x 3	4 x 4	4 x 4	1-3/8 round	1-3/4 round
Thickness, in.:	3/16	1/4	3/16	1/2	12 gauge	10 gauge
Hole Diam., in.:	13/16	13/16	13/16	13/16	9/16	11/16

Chance	6814	6817	6818	6819 1/2	6803	6805
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Dixie	D6814	D6817	D6818	D6819 1/2	D6803	-
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Hughes	SW2 1/4-70	SW3-70	SW4-70	SW4-70 (1/2)	RW1-3/8-50	-
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Joslyn	J1076	J22596	J1080	J1473	J1086	-
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Kortick	K1553	K1555	K1557	K1559 1/2	K1524	K1525
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McGraw-Edison	DF2W5	DF2W7	DF2W10	DF2W15	DF1W2	DF1W3
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Power Line Hardware	SWF-225A					
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Utilities Serv.	5485	5487A	5488	5490A	5478	5479
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Size, inches:	2 1/4 x 2 1/4	3 x 3	3 x 4	4 x 4	3 round
Thickness, in.:	1/4	5/16	7/16	1/2	3/16
Hole Diam., in:	11/16	11/16	15/16	13/16	13/16 (spurred)

Barron Bethea (Nodular Iron)	GCW-1A* BB-214	GCW-31*	CRW-4A*	GCW-41*	-
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Bethea/National (Aluminum Alloy)	-	WC-33-5*	WC-34-7*	WC-44-6*	-
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Continental (Nodular Iron)	-	CW-33-5*	CW-34-7*	CW-44-6*	TCSF-30-6
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Flagg (MIF) (Malleable Iron)	P141* P56A	P143*	P120*	P144*	PX159A
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Joslyn (Steel)	-	J114*	-	-	-
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Lapp (Line Ware) (Malleable Iron)	304075* 304089	304078*	-	304082*	-
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Power Line Hardware		CSW-33*	CRW-34*	CSW-44*	
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* Curved

April 1983

k - Insulator, Distribution Deadend

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Chance</u>		
Distribution deadend	965	For the purpose of gaining operating experience as follows: 1. For distribution lines only. 2. Recommended maximum working load is 5,000 lbs. 3. Not recommended for use in areas subject to contamination.
Catalog No. C654-0000	4/22/71	
"Epoxilator II"		
(15 kV line-to-line)	1082	
Catalog No. C654-2500	1/22/76	
"Epoxilator II"	1129	
(25 kV line-to-line)	12/15/77	
<u>Joslyn</u>		
Distribution deadend	1074	1. For distribution lines only, up to 15 kV line-to-line voltage.
UDI 671-3002	9/25/75	
	1088	
	4/15/76	
Distribution deadend	1074	1. For distribution lines only, up to 25 kV line-to-line voltage.
UDI 671-3010	9/25/75	
	1088	
	4/15/76	
<u>Plastigage</u>		
Distribution deadend	1158	To obtain experience.
H-15 kV-4	3/1/79	
H-25 kV-6	1208	
	3/19/81	
<u>Salisbury</u>		
Distribution deadend	1226	1. For distribution lines only. 2. To be used only in a horizontal position on deadends. 3. Recommended maximum working load is 5,000 lbs. 4. Not recommended for use in areas subject to contamination.
Catalog No. 9501, 15 kV	1/7/82	
Catalog No. 9502, 25 kV		

NOTE: When insulators from this page are used, adjust construction drawing material list quantities as necessary.

1-1
July 1982

1 - Clamp, deadend

DISTRIBUTION

Copper 2 through 6 CWC 4A through 8A		ACSR (Aluminum Clamps)			
		4/0 & 3/0	2/0	1/0	2 & 4
-	ALCOA	302	302	302	302
-	American Connector Engineering	QDA-63	QDA-53	QDA-53	QDA-53
MD-52-N	Anderson/Sq.D	PG57N	PG57	PG-46N	PG-46N
-	Bethea/National	DA-20N	DA-15-N	DA-15-N	DA-15-N
-	Continental	AQD-63	AQD-52	AQD-52	AQD-52
-	C & R	CR-20-90	CR-10-90	CR-10-90	CR-10-90
2111	Joslyn	BT5210	J25392	J25389	J25389
2111	Knox	5210			
-	Lapp	306120N	306118N	306118N	306118N
80500	Ohio Brass	89237	86534	86534	86534

1 - Deadend for Steel Strand (Overhead Ground Wire)

TRANSMISSION

For High Strength Steel Strand and Aluminum-Clad Steel Strand

Clamp Type

<u>High Strength Steel</u>		<u>Aluminum-Clad Steel</u>		
<u>Manufacturer</u>	<u>3/8" and 7/16"</u>	<u>7 No. 9 AWG</u>	<u>7 No. 8 AWG</u>	<u>7 No. 7 AWG</u>
Anderson/Sq. D	SWDE-55N			
Bethea/National	FD-550-N (For use on 3/8" steel strand only)			
Ohio Brass	80437			

1 - Deadend for steel strand (overhead ground wire)

TRANSMISSION

For high strength, extra high strength steel strand and aluminum clad steel strand

Compression Type

<u>Manufacturer</u>	<u>High strength steel</u>		<u>Aluminum-clad steel</u>		<u>Extra High Strength</u>	
	<u>3/8"</u>	<u>7/16"</u>	<u>7 No. 9 AWG</u>	<u>7 No. 8 AWG</u>	<u>5/16" 3/8"</u>	<u>7/16"</u>

Fargo	82S712	82S714	82A79	82A78	82A77	82S710 82S712 82S714
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Alcoa	4620.12	4627.14				
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Burndy	YTW375E	YTW438E	YTW7M9T	YTW7M8T	YTW7M7T	
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Somerset
Order by wire size
and type.

Formed Type

Chance			16M AWSBG	20M AWSBG	
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Helical Line Prod.	HG210-3/8	HG211-7/16	HG523-12.5M	HG525-16M	HG528-20M	HG209-5/16 HG210-3/8 HG211-7/16
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Automatic Type

Fargo	GDE-302	GDE-303	GDE-302	GDE-303	GDE-301	GDE-302	GDE-303
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Reliable	5202	5203	5202	5203	5201	5202	5203
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January 1983

1 - Clamp, deadend

DISTRIBUTION

2-Bolt Straight Line, Aluminum Alloy

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>*Barron Bethea</u> Aluminum alloy deadend Catalog No. SDF-10A (4 through 4/0 ACSR)	871 7/6/67	(a) To obtain experience. (b) Applications limited to replacements under hot line conditions.
<u>*Fargo</u> Aluminum alloy deadend Catalog No. GD-960A (With side opening keeper order GD-961A) (No. 4 and No. 2 ACSR) Catalog No. GD-972A (2/0, 3/0, 4/0 ACSR)	1137 4/20/78 1144 8/3/78 791 4/30/64	Same as above.
<u>*C & R Products</u> Aluminum alloy deadend Catalog No. CR-15-180 (No. 2 and No. 4 ACSR)	918 5/15/69	Same as above.
<u>*Bethea/National</u> Aluminum alloy deadend Catalog No. ASO-684-2 (1/0, 2/0, 3/0 ACSR) Catalog No. ASD-2-N (4-2/0 ACSR) Catalog No. ASD-34-N (3/0, 4/0 ACSR)	961 2/18/71 1201 12/4/80	Same as above. Same as above.
<u>*Anderson/Square D</u> Aluminum alloy deadend Catalog No. ADS-48-N (2/0 ACSR) Catalog No. ADS-60-N (3/0 ACSR)	1130 1/5/78 1148 9/28/78	Same as above.
<u>*Continental</u> Aluminum Alloy deadend Catalog No. HDSO-57 (with side opening) (4-4/0 ACSR) Catalog No. SGA-52-23 (4-2/0 ACSR) Catalog No. SGA-60 (3/0-4/0 ACSR)	1244 10/7/82	Same as above.

*Straight line deadend clamps are applicable for urban construction where tensions are moderate and on lines often worked hot.

Conditional List

1(1.1)

April 1983

1 - Clamp, deadend

DISTRIBUTION

2-Bolt Straight Line, Aluminum Alloy

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
*Burndy	A1255	(a) To obtain experience.
Aluminum alloy deadend	3/24/83	(b) Applications limited
Catalog No. CUW26RE-1		to replacement under
#2-2/0 Str. Aluminum		hot line conditions.
#4-2/0 ACSR		

*Straight line deadend clamps are applicable for urban construction where tensions are moderate and on lines often worked hot.

m-1
July 1982

m - Clamp, suspension

2 BOLT - DISTRIBUTION

	<u>Copper & CWC</u>	<u>ACSR with 4</u>	<u>Straight or 2</u>	<u>Formed 1/0 & 2/0</u>	<u>Armor Rods* 3/0 & 4/0</u>
Anderson/Square D	MS-46-N	MS-60-N	MS-70-N	HAS-85-N	HAS-104-N
Barron Bethea	FWG-1	FWG-2	FWG-3	FWG-4	-
Bethea/National	FS-46-N	GW-1-N	LS-O-N	LS-1-N	LS-2-N
C & R Products	-	-	-	CRSC-1	CRSC-2
Dulmison	-	-	-	-	AGS*
Brown Boveri Elec.(ITE)	6240	6241	6242	6243	6244
Joslyn (Brewer-Titchener)	6240	6241	6242	6243	6244
Knox	6240A-U	6241A-U	6242A-U	6243A-U	6244A-U
Lapp	305740N	306027N	306028N	306029N	306030N
Ohio Brass	83044	83064	83074	83084	83104
Preformed	-	-	-	-	AGS*

*Accepted for larger sizes.

m - Clamp, Suspension

ANGLE - DISTRIBUTION
No. 2 & 4 ACSR
Plus Rods

2-BOLT TRANSMISSION
For 3/8" Steel Overhead
Ground Wire

AAC-68-90	Anderson/Square D	MS-46-N
-	Barron Bethea	FGW-1
RALS-1	Bethea/National	FS-46-N
AC-75	Continental	FSC-46N
GD-907A	Fargo	-
2300	Brown Boveri Elec.(ITE)	6240
2300	Joslyn (Brewer-Titchener)	6240
2300	Knox	6240A-U
306092	Lapp	305740N
82860	Ohio Brass	83044
AC-1660	Power Line Hardware	

n
April 1983

n - Bolt, double arming

Applicable Specifications: Edison Electric Institute
Specification TDJ-1 1969,
"Specifications for Steel
Bolts and Nuts"

Applicable Sizes : 5/8 inch diameter, 12 inch
through 24 inch length

3/4 inch diameter, 20 inch
through 24 inch length

The following manufacturers have shown compliance with the applicable specifications for double arming bolts:

A. B. Chance Company
Dixie Electrical Manufacturing Company

Hughes Brothers
*Joslyn Manufacturing and Supply Company
Kortick Manufacturing Company
*McGraw-Edison
Portland Bolt & Manufacturing Company
Utilities Service Company



*"Static proof" designs available.

z - Anchors, Service

Designated Maximum Holding Power in Sand - 2500 lbs.

	<u>Screw</u>	<u>Expanding</u>
Chance	6346	6870
Dixie	D-6526	-
Grip-Tite	-	322065G
Joslyn	J6526W-CA	J0870-G
McGraw-Edison	DA2N1	-
Power Line Hardware	-	8-70G
Utilities Service	C6346-G	PL62-2.5-G

z - Anchors, Swamp

DISTRIBUTION

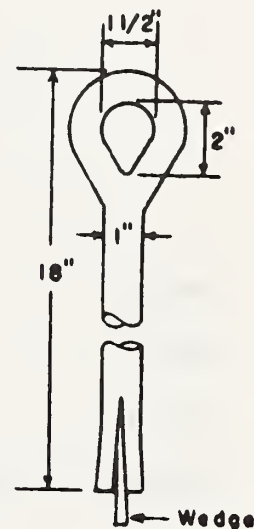
	<u>10" dia.</u>	<u>12" dia.</u>	<u>15" dia.</u>
Chance	10150AS	132AS	152AS
Dixie	D-6710-S	D-6713-S	D-6715-S
Joslyn	J2871SG	J2872SG	J2873SG
Utilities Service	C10150A-G	C122A-C	C152A-G

NOTE: Where galvanized anchors are listed, the same anchors ungalvanized (black asphalt coated) are also acceptable.

z-5
July 1982

z - Anchors, Rock

	Expanding Rock Anchors			Rock Guy Bolt
Anchor Size - inches	1-3/4	1-3/4	1-3/4	1-3/4
Rod Length - inches	15	30	53	18
Rod Diameter - inches	3/4	3/4	3/4	1
Chance	R315	R330	R353	-
Joslyn	J3436	J3437	J3438	
Kortick	K5503	K5504	K5505	K2377
McGraw-Edison	-	-	-	DALW1
Utilities Service	CR315	CR330	CR353	5003



z - Pole keys

Chance	P-4817
Joslyn	J-4817
Utilities Service	CP-4817

April 1983

z - Anchors




<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Chance</u>		
Screw anchors, power installed	1252 2/3/83	To obtain experience.
24462 (6,000 and 8,000 lb.)		
12332P 5/8" rod		
12587 5/8" thimbleye		
24484 (10,000 and 12,000 lb. anchor helix)		
12632P (3/4" rod)		
6512 (thimbleye nut)		
<u>Dixie</u>		
Screw anchors, power- installed	859 2/9/67	To obtain experience.
D-1162-G (6,000 & 8,000 lb., 5/8" rod)		
D-1375-G (10,000 & 12,000 lb., 3/4" rod)		
<u>Joslyn</u>		
Screw anchors, power- installed	973 8/19/71	To obtain experience.
J11b CA (6,000 & 8,000 lb., 5/8" rod)		
J13C CA (10,000 & 12,000 lb., 3/4" rod)		
<u>McGraw-Edison</u>		
Screw anchors, power- installed	992 5/25/72	To obtain experience.
DALLG621 (6,000 & 8,000 lb., 5/8" rod)		
<u>Foresight</u>		
Duckbill Service Anchor	1202	To obtain experience.
#250 (2500 lbs., 5/8" rod)	12/18/80	
Duckbill Anchor		
#400 (6000 & 8000 lbs., 3/4" rod)		
#800 (10,000 & 12,000 lbs., 1" rod)		

NOTES: Where galvanized anchors are listed, the same anchors ungalvanized (black asphalt coated) are also acceptable.

Catalog numbers shown are for anchors with 1-3/8" hubs. Equivalent anchors with 1-1/2" hubs are also acceptable. (A special installing wrench is required.)

aa, ab
January 1983

aa - Nut, eye
ab - Nut, thimble eye
5/8 inch

	<u>Eye Nut Conventional</u>	<u>Eye Nut Eyelet</u>	<u>Thimble Eye Nut</u>
			
Barron Bethea	OEN-2A	B-14A	EN-4A
Berny's Forging Co.	OE1		
Bethea/National	E-5	B-5	NT-5
Chance	6502	-	6510
Continental Electric	EN-5	BE-5	TN-5
Dixie	D6502	DD-6517	D6510
Flagg (MIF)	P125C	P127A	P128A
Hughes	EN60	-	-
Joslyn	J1092	J1126	J6510
Kortick	K4212	K4413	K3111
Lapp (Line Ware)	304008	306267	304010
McGraw-Edison	DG2E3	DG6E1	DG1E1
Power Line Hardware	OEN-1	BEL-1	-
Utilities Service	450	497	C580

ai - Rods, ground, sectional

Galvanized steel and
copper-covered steel

Copper-covered ground rods are listed with a 13 mil minimum at any point and a 15 mil average covering of copper. All purchases should specify that a factory certification of the thickness of the copper must accompany the shipment of the rods.

Sectional Ground Rods

<u>Manufacturer</u>	<u>8' long</u>	<u>10' long</u>	<u>Couplings</u>	<u>Driving studs</u>
Blackburn	6258S	6260S	60C	60DS
Carolina Galv.	S-588	S-5810	CR58	DS58
Chance Galv. Steel	C203-0052	8512	8611	-
Joslyn Galv. Steel	J9158 J23282.8	J9160 J23282.10	J9182 J23282A	J9186 J9186
Knight	S858	S1058	SC58	DS58
Kortick	K5441	K5443	K5482	K5492
McGraw-Edison Galv. Steel	DN17S8	DN16S10	DN1K2	-
Power Line Hardware	GR-588CS	GR-5810CS	CBC-58	DS-58
UTM	-	-	910-030-05	-
Weaver	W-588T	W-5810T	158C	358D

aj - Clamp, Ground Rod

<u>Manufacturer</u>	<u>For 5/8"</u> <u>Copper-</u> <u>Covered Rod</u>	<u>For 3/4" Galv.</u> <u>or Stainless</u> <u>Steel Rod</u>	<u>For 5/8" Galv.</u> <u>or Stainless</u> <u>Steel Rod</u>
AMP	Copper AMPACT (Order by Description)	-	-
Anderson	GC-5	-	-
Blackburn	G5	-	-
Boggs	G31	-	-
Burndy	GRC58	-	-
C & R Products	CRGC-58	-	-
Dossert	GNL62H	-	-
*Erico (Cadweld)			
1 ground wire	GR1-161G	GR1-181G	GR1-161G
2 ground wires	GR1-161G	GR1-181G	GR1-161G
Greaves/Mercury	G-580	-	-
Ilsco	GRC-58	-	-
Joslyn	J8392AB	J25985	J25932
Knight	C58	UCSS	UCSS
Krueger & Hudepohl	808	-	-
Kortick	K4647	-	-
O-Z Elec. Mfg.	BG0304	-	-
Penn-Union	CEB-2	-	-
Power Line Hardware	RC-58C	-	-
Reliable	E58	3459	3459
UTM	910-023-03	910-007-02	910-007-02
Weaver	WB5/8	-	-
Wilcor	HGR5/8	WAW-3/4"	WAW-5/8"

* Includes disposable molds.

Westinghouse	
34.4	
43.8	
67.0	
115	

an - Transformers, Power
Three-Phase, Step-Down
for Distribution Substation Use

Primary Voltage-kV	kVA						MVA							
	750	1000	1500	2000	2500	3750	5	7.5	10	12	15	20	25	30
Central Moloney														
34.4	X	X	X	X	X	X	X	X						
43.8	X	X	X	X	X	X	X	X	X					
67.0	X	X	X	X	X	X	X	X	X	X				

General Electric

34.4	X	X	X	X	X	X	X	X	X	X	X	X	X	X
43.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X
67.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
115														
138														

Transformers 5 MVA and larger also accepted as load tap changing transformers using General Electric Types LR72, LR65 and LRT-200 load tap changers.

Kuhlman

34.4	X	X	X	X	X	X	X	X	X	X	X	X	X	X
43.8	X	X	X	X	X	X	X	X	X	X	X	X	X	X
67.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
115														
138														

Transformers 5 MVA and larger also accepted as load tap changing transformers using Siemens-Allis Types T1S and T1H-21 load tap changers.

Federal Pacific

67.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X
115														
138														

Transformers 5 MVA and larger also accepted as load tap changing transformers using Federal Pacific Type TC-546 load tap changers.

aw
July 1982

aw - Washer, Spring

$\frac{1}{4}$ x 1-3/4" x 3 $\frac{1}{2}$ "

<u>Manufacturer</u>	<u>Bolt Size</u>		
	<u>5/8"</u>	<u>3/4"</u>	<u>7/8"</u>
Chance	3540	3541	-
Joslyn	J3540	J3541	J3542
Kortick	K2909	-	-
Fastex (ITW) "Ramp Lok"	1-760-21	1-760-31	1-760-41
McGraw-Edison	DF17W3	DF17W4	DF17W5

ax - Cutout and Arrester, Combination

Nominal System Voltage Cutout Max. Voltage Rating	For 12.5Y/7.2 kV		For 13.2Y/7.6 kV		For 24.9Y/14.4 kV	
	7.8 kV	15 kV	15 kV	30 Bank	18 kV	27 kV
Application		30 Bank	30 Bank	30 Sect.		30 Bank
Cutout Current Rating	10 Sect. 50*	30 Sect. 100	10 Trans. 50*	10 Sect. 100	10 Trans. 50*	10 Sect. 100
Manufacturer	Catalog Numbers					
Chance	Crossarm Transformer	C71A-112PB Series	C71A-112PB Series	C71A-112PB Series	C71C-211PB Series	
General Electric	Crossarm (L) Transformer	9F80	9F78A	9F80	9F78A	9F80
Joslyn (valve)	Crossarm	J9237-Q6	J9237-Q2/R	J9237-Q6	J9267-Q6	J9267-Q2
(valve)	Crossarm (L)	J9237-Q2/B	J9237-Q2/B/R	J9237-Q2/B/R	J9267-Q2/B	
(valve)	Transformer	J9238-1Q	J9238-1Q		J9268-1Q	
Kearney	Crossarm Transformer	294072	123511	123512	294074	123514
McGraw-Edison	Crossarm (L) Transformer	AFS301B Series	AFS301C Series	AFS301C Series	AFS800M018 Series	AFS300D Series

Either normal duty or heavy duty distribution class arresters listed on page ae-1 are acceptable for use with these combination units.

*These cutouts have open links and must not be used where fault currents are high or for sectionalizing.

(L) Indicates loadbreak type is available.

bb
July 1982

bb - Brace, sidearm vertical

	26" brace <u>24" bolt-hole spacing</u>	50" brace <u>24" bolt-hole spacing</u>
--	---	---

Dixie	D6986	D6987
Joslyn	J1536	J1537
Kortick	K1931	K1932
McGraw-Edison	DE1 V1	DE1 V3
Utilities Service	5249	5250

be - Recloser, oil circuit
7.2/12.5 kV

Lexington
Switch and
Controls

Single phase - Type HRI-50, ratings 5-50 amperes,
maximum interrupting capacity 1250 amperes.
Single phase - Type HR4-100, ratings 25-100 amperes,
maximum interrupting capacity 2000 amperes.
Single phase - Type HRI-280, ratings 25-100 amperes,
maximum interrupting capacity 4000 amperes.

McGraw-Edison

Single phase - Type H, ratings 5-50 amperes, maximum
interrupting capacity 1250 amperes.
Single phase - Type 4H, ratings 5-100 amperes, maximum
interrupting capacity 2500 amperes.
Single phase - Type L, ratings 25-100 amperes, maximum
interrupting capacity 4000 amperes.
Three phase - Type 6H, ratings 5-100 amperes, maximum
interrupting capacity 2500 amperes.
*Three phase - Type RX, ratings 25-400 amperes, maximum
interrupting capacity 6000 amperes.
*Three phase - Type W, ratings 100 to 560 amperes,
maximum interrupting capacity 10,000 amperes.
*#Three phase - Type RXE, rating 400 amperes, maximum
interrupting capacity 6000 amperes.
*#Three phase - Type WE, rating 560 amperes, maximum
interrupting capacity 10,000 amperes.
*#Three phase - Type ME, ratings 560 or 1120 amperes,
maximum interrupting capacity 16,000 amperes.

14.4/24.9 kV

McGraw-Edison

Single phase - Type E, rating 5-100 amperes, maximum
interrupting capacity 2500 amperes. Available with
shunt lockout solenoid for three-phase operation.
*#Three phase - Type RVE, rating 400 amperes, maximum
interrupting capacity 6000 amperes.
*Three phase - Type WV, rating 560 amperes, maximum
interrupting capacity 8000 amperes.
*#Three phase - Type WVE, rating 560 amperes, maximum
interrupting capacity 8000 amperes.
*Single phase - Type 4E, rating 50-280 amperes, maximum
interrupting capacity 4000 amperes.
*#Three phase - Type CXE, rating 560 amperes, maximum
interrupting capacity 16,000 amperes, maximum voltage 34.5 kV.

*Ratings greater than 100 amp. for 7.2/12.5 kV application, and
greater than 200 amp. for 14.4/24.9 kV application, are acceptable
only with ground trip device.

#Not acceptable with load current, bushing CT battery chargers.

be - Recloser, oil circuit

<u>Manufacturer</u>	<u>Meeting No and Date</u>	<u>Conditions</u>
<u>*Lexington Switch and Controls</u>		
Oil circuit recloser,	620	To obtain operating experience.
14.4/24.9 kV	4/18/57	
Single phase-HR1,	1080	
rated 100 amperes	12/23/75	
Three phase-HR3,		
rated 100 amperes		

*Ratings greater than 100 amp. for 7.2/12.5 kV application, and greater than 200 amp. for 14.4/24.9 kV application, are acceptable only with ground trip devices.

be - Reclosers, vacuum interrupter

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
* <u>McGraw-Edison</u>		
Single-phase, type V4H, maximum voltage 14.4 kV for 7.2/12.5 and 7.62/13.2 kV	921 6/26/69	To obtain experience.
Three-phase, type V6H, maximum voltage 14.4 kV for 7.2/12.5 and 7.62/13.2 kV	921 6/26/69	To obtain experience.
#Three-phase type VSR rated 400 amperes continuous, maximum voltage 14.4 kV for 7.2/12.5 kV and 7.62/13.2 kV	953 10/8/70	To obtain experience.
#Three-phase type VSML rated 560 amperes continuous, maximum voltage 14.4 kV for 7.2/12.5 kV and 7.62/13.2 kV	953 10/8/70	To obtain experience.
Three-phase type VW rated 560 amperes continuous, maximum voltage 14.4 kV for 7.2/12.5 kV and 7.62/13.2 kV	1005 12/7/72	To obtain experience.
#Three-phase type VWE rated 560 amperes continuous, maximum voltage 14.4 kV for 7.2/12.5 kV and 7.62/13.2 kV	1005 12/7/72	To obtain experience.
#Three-phase type VWVE rated 560 amperes continuous, maximum voltage 27 kV for 14.4/24.9 kV	1014 4/12/73	To obtain experience.

*Ratings greater than 100 amp. for 7.2/12.5 kV application, and greater than 200 amp. for 14.4/24.9 kV application, are acceptable only with ground trip devices.

#Not acceptable with load current, bushing CT battery chargers.

bi
July 1982

bi - Gain, pole

For use with rectangular crossarms

Chance	4092
Continental	CAG-44-5
Flagg (MIF)	PX252
Joslyn	J4092

For braceless crossarms (narrow profile construction)

Bethea/National	GCAF-6A
Continental	DEA-65-10A
Flagg (MIF)	PX182A
Lapp	304065

Transmission

Grid Gains

	Sizes in inches	
	<u>4" x 4"</u>	<u>4$\frac{1}{2}$" x 9"</u>
Barron Bethea	PG-44	PG-945
Bethea/National	GSF-44-7	GSFT-95-7
Continental	GGSF-4040-7	GRF-3045-7
Flagg (MIF)	PX122	PX260
Joslyn	J6064	J22533-A
Lapp (Line Ware)	304067	304070

bj
April 1983

bj - Guy Hook

Applicable Specification: Edison Electric Institute Specification TD-11
1951, "Specifications for Guy Hooks and Guy
Strain Plates"

Dixie	D6584
Joslyn	J1019
Kortick	K4031
McGraw-Edison	DG4H1
Utilities Service	5310
Chance	6584



bo
July 1982

bo - Shackle, anchor

<u>Manufacturer</u>	<u>Catalog Number</u>
Anderson/Square D	AS-25
Bethea/National	ASH-45
Chance	5801
Continental	AS-25-5-4
Dixie	D5801
Brown Boveri Electric (ITE)	3022
Joslyn	J2742
Knox	3022
Kortick	K4481
Lapp	33852
McGraw-Edison	DC7J1
Ohio Brass	13722
Utilities Service	4106

br
April 1983

br - End Link

<u>Manufacturer</u>	<u>Catalog Number</u>
Bethea/National	CL-5
Brown Boveri Electric (ITE)	3082-HT
Continental	L-5
Joslyn (Brewer-Titchener)	BT-3082-HT
Knox	3082-HT
Lapp	6415-HT
Ohio Brass	79272
Lindsey	3403

ct
July 1982

ct - Plate, Double Arming

Transmission

<u>Manufacturer</u>	<u>4" x $\frac{1}{2}$" x 24"</u>	<u>4" x $\frac{1}{4}$" x 17"</u>
Chance	5844	5819
Dixie	D5844	D5845
Joslyn	J1600	J1607
Kortick	K1454	K1465
McGraw-Edison	DP21A1	DP23A3
Power Line Hardware	-	DAP-17
Utilities Service	4117	-

cu
April 1983

cu - Brace, crossarm, wood

Span, inches	60	60
Drop, inches	<u>18</u>	<u>30</u>
Aluma-Form	6018	6030
American Crossarm & Conduit Company	220	225
Brooks Lumber Company	44680	44681
Cascadian Company	15018	15030
Dis-Tran	DT-60	DT-601
Hatheway Patterson	16018	-
Hughes	2045-CC	2045-D
Joslyn	J4760R	J4730W-R
Utilities Structures Engineering Incorporated	CU-60-18	CU-60-30

Braces listed below have 26-inch hole spacing. They are interchangeable with the flat steel braces listed on page h.

Aluma-Form	AF626
American Crossarm & Conduit	600
Brooks Lumber Company	58128
Dis-Tran	DT-28
Hatheway Patterson	7026
Hughes	2023
Joslyn	J5526

Brace, crossarm, fiber reinforced plastic

Continental	CRB-28
Joslyn	RP-26
Plastigage	CAB-28
Shakespeare	533

cx
July 1982

cx - Splice, oval tube

<u>Conductor Size:</u>	<u>4</u>	<u>2</u>	<u>ACSR</u>	<u>1/0</u>	<u>2/0</u>
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<u>Conductor Size:</u>	<u>0 x 7</u>	<u>2 x 3</u>	<u>Copper</u>	<u>4</u>	<u>6</u>
MEMCO	63	62		58	56
National Tel. Supply	464	463		459	457

<u>Conductor Size:</u>	<u>Copperweld-Copper</u>	<u>6A</u>	<u>8A</u>
MEMCO		170	168
National Tel. Supply		460	459



cy - Splice, Compression
ACSR

<u>Conductor Size</u>	<u>Alcoa</u>	<u>Anderson/ Sq. D</u>	<u>Burndy</u>
4 6/1	2-piece	VC-36R	"Unisplice"
4 7/1	Order	VC-36R	(1-piece)
2 6/1	by	VC-36R	or Y-S
2 7/1	Conductor	VC-36R	(2-piece)
1/0	Size	VC-50R	Order by
2/0	and	VC-50R	Conductor
3/0	Stranding	VC-61R	Size and
4/0	"	VC-61R	Stranding
266.8 kcmil 26/7	2-piece	VC-831-1-RM	2-pc.
336.4 kcmil 26/7	Compression	VC-831-1-RM	Type YTS
477 kcmil 26/7	Alloy Type	VC-832-2-RM	"
556.5 kcmil 26/7	CJ	VC-833-3-RM	"
795 kcmil 26/7		VC-835-4RM	"
954 kcmil 54/7		VC-835-4RM	"

<u>Conductor Size</u>	<u>Fargo</u>	<u>ITT Blackburn</u>	<u>Kearney</u> <u>2 pc.</u>	<u>1 pc.</u>
4 6/1		Type RC		OH4-61-71AS
4 7/1		1-piece		OH4-61-71AS
2 6/1		Order		OH2-61-71AS
2 7/1		by		OH2-61-71AS
1/0		Conductor	OH1/0-61A	OH1/0-61AS
2/0		Size	OHR2/0-61A	
3/0		and	OHR3/0-61A	
4/0		Stranding	HR4/0-61A	
266.8 kcmil 26/7	Uni-Grip	#4 to 4/0	HR-266-267A	
336.4 kcmil 26/7	one die		HR-336-267A	
477 kcmil 26/7	system		HR-477-267A	
556.5 kcmil 26/7	Order by		HR-556-267A	
795 kcmil 26/7	conductor size			
954 kcmil 54/7	and stranding			

<u>Conductor Size</u>	<u>Nat. Tel. Supply</u>	<u>Somerset/ Homac</u>	<u>ESP</u>
4 6/1	"Nicopress"	"Tension	FTR-4
4 7/1	(1-pc. or 2-pc.)	splicer"	FTR-4
2 6/1	Order by Conduc-	(1-piece or	FTR-2
2 7/1	tor Size and	2-piece)	FTR-2.5
1/0	Stranding	Order by	FTR-1/0
2/0	2-pc.	Conductor	FTR-2/0.5
3/0	"	Size and	FTR-3/0
4/0	"	Stranding	FTR-4/0
266.8 kcmil 26/7	"	2-pc.	
336.4 kcmil 26/7	"	"	
477 kcmil 26/7	"	"	
556.5 kcmil 26/7	"	"	
795 kcmil 26/7			
954 kcmil 54/7			

cy - Splice, Compression

Copper and Copperweld-Copper

<u>Conductor Size</u>	<u>Anderson/ Sq. D.</u>	<u>Burndy</u>	<u>Kearney</u>	<u>Nat. Tel. Supply</u>
6 cu	VCC-28	YDS6W	OH6C	1-162/J
4 cu	VCC-28	YDS4W	OH4C	1-204/P
2 x 3 cu	-	YDS2C-3	OH2-3CX	1-258/3X
0 x 7 cu	-	YDS25	OH1-7C	1-325/7F6
8A CWC	VCC-28	YDS8KT	OHR8ACW	1-8A-P
6A CWC	VCC-28	YDS6KT	OHR6ACW	1-6A-P
4A CWC	VCC-37	YDS4KT	OHR4ACW	1-4A-X
2A CWC	VCC-43	-	-	-

<u>Conductor Size</u>	<u>Somerset/ Homac</u>
6 cu	J2C3
4 cu	L2C5
2 x 3 cu	S2C7
0 x 7 cu	U2C9
8A CWC	L2E1
6A CWC	L2E3
4A CWC	Q2E5
2A CWC	U2E7

cy - Splice, compression
(one-piece)

(For 6201 and 5005 Aluminum Alloy Conductors)

<u>Conductor Size</u>	<u>Anderson/ Square D</u>	<u>Burndy</u>	<u>ITT Blackburn</u>
#4 thru 4/0	Type VC-R Order by Conductor Size and Stranding	"Unisplice" Order by Conductor Size and Stranding	Type RC Order by Conductor Size and Stranding

<u>Conductor Size</u>	<u>Somerset/Homac</u>	<u>ESP</u>
#4 thru 4/0	"Tension Splicer" Order by Conductor Size and Stranding	Type FTR order by size and standing

cy - Splice, compression

1-piece splice for ACSR

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
*ALCOA "Jiffy Joint"	704 11/10/60	To obtain experience.

1-piece splice for AWAC

<u>Burndy</u> AWAC 4-4/3 YDS7M10T AWAC 2-4/3 YDS7M9T AWAC 1/0-4/3 YDS7M7T	1050 9/19/74	To obtain experience.
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*Satisfactory for use with 6201 and 5005 all aluminum alloy conductor through 4/0 and 19 strand conductors of sizes 26,800 CM and 477,000 CM.

cz - Splice for Steel Strand (Overhead Ground Wire)

Compression

Single Sleeve Only

	<u>High Strength Steel</u> <u>3/8" 7/16"</u>		<u>Extra High Strength</u> <u>3/8" 5/16" 7/16"</u>		<u>Aluminum Clad Steel</u> <u>7 No. 9 AWG 7 No. 8 AWG 7 No. 7 AWG</u>		
Alcoa			4914.386	4916.453			
Burndy	YTS375E	YTS438E			YDS7M9T	YDS7M8T	YDS7M7T
Fargo	81390	81468	81390	81344	81375	81421	81468
Kearney	HR-3/8-3-7S						

National Tel.
Supply

5-7/120G92 5-7/145J22

Somerset/Homac

29714

Steel and Aluminum Sleeves

Somerset/Homac

29714 & 28414
(Two piece)

Automatic

Reliable 5043 5003 5042 5041 5043 5042 5043

Electroline

GD-537

Bolted Type

Formed Type

Helical Lin
Products

HS-310-3/8"

HS-311-7/16"

eb
April 1983

eb - Bracket, Pole Top
For Post Type Insulators

DISTRIBUTION

<u>Barron Bethea</u> (7.2 or 14.4 kV)	1B-4
<u>Bethea/National</u> (7.2 or 14.4 kV)	BPT-58F
<u>Continental</u> (7.2 or 14.4 kV)	PTB-55-8
<u>Flagg (MIF)</u> (7.2 or 14.4 kV)	P531
<u>Joslyn</u> (7.2 or 14.4 kV)	J23333
<u>Lapp (Line Ware)</u> (7.2 or 14.4 kV)	304043
<u>McGraw-Edison</u> (7.2 or 14.4 kV)	DC62B1
<u>Ohio Brass</u> (7.2 or 14.4 kV) (7.2 kV)	84324 89725

TRANSMISSION

Barron Bethea	1B-4
Bethea/National	BPT-58HF
Continental	PTB-66H
Flagg (MIF)	P532
Lapp (Line Ware)	304044
McGraw-Edison	DP29A1
Ohio Brass	84324

NOTE: Pole top bracket (Item eb) and post insulator (Item ea) may be substituted for pole top pin (Item b) and pin insulator (Item a) for both small and large conductor distribution drawings shown in REA Forms 803 and 804 at the option of the owner.

ec
July 1982

ec - Bracket, Offset Neutral

Chance	C206-0004
Dixie	D-2352
Joslyn	J2352
McGraw-Edison	DC6N1

gw - Crossarm Assembly for H-Frame Construction

Applicable Specification: REA Specification T-7, Revision dated
November 1962

Applicable Drawing : TH-11B Series (161 kV maximum)
No braces (TH-11B)
Two vee braces on outside (TH-11BVO)
Two vee braces on inside (TH-11BVI)
Four vee braces (TH-11BV4)

3-5/8" x 9-3/8" x 33' wood crossarm assembly complete
with attaching hardware, fittings, bolts and 3-3/8" x
5-3/8" braces.

Catalog Nos. or Drawing Nos.

	<u>TH-11B</u>	<u>TH-11BVO</u>	<u>TH-11BVI</u>	<u>TH-11BV4</u>
	<u>Items</u>	<u>Items</u>	<u>Items</u>	<u>Items</u>
(Assemblies)	gw	gw and vo	gw and vi	gw and vv
American Crossarm and Conduit Co. (1)	70250	7025VO	7025VI	7025V4
Brooks Lumber (1,2)	6411	6411-1	6411-2	6411-3
Cascadian (1,2)	CCC11B72	CCC11B72-VO	CCC11B72-VI	CCC11B72-V4
Hughes Brothers (1,2)	C3316-B	C3316-B	C3316-B	C3316-B

- 1 - Fixed spacer fitting sizes as required
- 2 - Adjustable spacers are available

gw - Crossarm Assembly for H-frame Construction
(Double Arm) 230 kV (Small Angle)

Applicable Specification: REA Specification T-8
Drawing : TH-231B

Assembly complete with attaching hardware, fittings, bolts and braces.

Crossarm 3-5/8" x 9-3/8"

<u>Manufacturer</u>	<u>Catalog No.</u>
American Crossarm & Conduit (1)	8026VB
Brooks (1,2)	64231
Cascadian (1,2)	CCC231B82
Hughes (1,2)	C-3338-B

Crossarm 5-1/8" x 7-1/2"

Brooks (1,2)	64231L
Cascadian (1,2)	CCC231BT
Hughes (1,2)	C-3338-BL

- 1 - Fixed spacer fitting sizes as required.
- 2 - Adjustable spacers are available.

gw(1)
April 1983

gw - Crossarm Assembly for H-Frame Construction

Applicable Specification: REA Specification T-7
Applicable Drawing: Drawing TH-11B Series (161 kV maximum)

Condition: These adjustable spacers are not interchangeable with fixed spacers, and are only for use where the Borrower has determined that interchangeability with fixed spacers or standard adjustable spacers will not be required in the future.

	<u>Catalog Numbers or Drawing Numbers</u>			
	<u>TH-11B</u>	<u>TH-11BVO</u>	<u>TH-11BVI</u>	<u>TH-11BV4</u>
American Crossarm and Conduit	70250	7025V0	7025VI	7025V4

gw(2)

gw - Crossarm Assembly for H-Frame Construction
(Double Arm) 230 kV (Small Angle)

Applicable Specification: REA Specification T-8
Applicable Drawing: Drawing TH-231B

Condition: These adjustable spacers are not interchangeable with fixed spacers, and are only for use where the Borrower has determined that interchangeability with fixed spacers or standard adjustable spacers will not be required in the future.

	<u>Catalog Numbers or Drawing Numbers</u>
	<u>Crossarm 3-5/8" x 9-3/8"</u>
American Crossarm and Conduit	8026VB

gy-2
April 1983

gy - Crossarm Assembly for H-frame Construction
(Double Arm) 230 kV (Tangent)

Applicable Specification: REA Specification T-8
Drawing : TH-230

Assembly complete with attaching hardware, fittings, bolts and braces.

Crossarm 3-5/8" x 9-3/8"

<u>Manufacturer</u>	<u>Catalog No.</u>
American Crossarm & Conduit (1)	8025V4
Brooks (1,2)	64230
Cascadian (1,2)	CCC23081
Hughes (1,2)	C-3338-A
Niedermeyer-Martin (1)	N-6720

Crossarm 5-1/8" x 7-1/2"

Brooks (1,2)	64230L
Cascadian (1,2)	CCC230T
Hughes (1,2)	C-3338-AL

- 1 - Fixed spacer fitting sizes as required.
- 2 - Adjustable spacers are available.

gz - Crossarm Assembly for Wishbone Construction, "Z" Type
(Single Arm)

Applicable Specification: REA Specification T-5
Applicable Drawings : REA Drawings TSZ-1 and TMZ-1

3-5/8" x 5-5/8" wood crossarm assembly complete with
brace and attaching hardware, fittings, and bolts

The following manufacturers have shown compliance with the applicable
specifications for this assembly:

<u>Manufacturer</u>	<u>Catalog Nos. or Drawing Nos.</u>
American Crossarm & Conduit Co.	601TSZ and 602TSZ
Brooks Lumber	64Z1
Hughes Brothers	C-3162-A and C-3162.10

April 1983
gy(1)

gy - Crossarm Assembly for H-Frame Construction
(Double Arm)

Applicable Specification: REA Specification T-7
Applicable Drawing: Drawing TH-10 Series

Condition: These adjustable spacers are not interchangeable with fixed spacers, and are only for use where the Borrower has determined that interchangeability with fixed spacers or standard adjustable spacers will not be required in the future.

	<u>Catalog Numbers or Drawing Numbers</u>			
	<u>TH-10</u>	<u>TH-10V0</u>	<u>TH-10VI</u>	<u>TH-10V4</u>
American Crossarm and Conduit	70208	70228	70228I	70248

gy(2)

gy - Crossarm Assembly for H-Frame Construction
(Double Arm)

Applicable Specification: REA Specification T-8
Applicable Drawing: Drawing TH-230

Condition: These adjustable spacers are not interchangeable with fixed spacers, and are only for use where the Borrower has determined that interchangeability with fixed spacers or standard adjustable spacers will not be required in the future.

	<u>Crossarm 3-5/8" x 9-3/8"</u>
	<u>Catalog Number</u>
American Crossarm and Conduit	8025V4

July 1982

U an - Transformers, Distribution,
Direct Burial*

(5-25 kVA only)

Conditions: To obtain experience.

ManufacturerMetallic Tank
(Cathodic protection
required)Nonmetallic Tank
(Cathodic protection not
used)Central Moloney
(Meeting 993, 6/8/72)"Trenchmite" 15-25 kVA
Radial Feed or Loop Feed
(same end) onlySargent-Tyee
(Meeting 1016, 5/10/73)"No-Korrod"
10-25 kVA

*Direct burial transformers are at an early stage in their development. Large numbers of direct burial transformers should not be purchased from any one manufacturer by any one borrower in any one year. Carefull location records should be kept.

U ax
April 1983

U ax - Cutout and Arrester, Combination
for Underground System Pole Risers

Nominal System Voltage	For 12.5Y/ 7.2 kV	For 13.2Y/ 7.6 kV	For 24.9Y/ 14.4 kV	
Cutout Maximum Voltage Rating	7.8 kV	15 kV	15 kV	27 kV
	1Ø	3Ø	1Ø and 3Ø	1Ø and 3Ø
Application	Risers	Risers	Risers	Risers
Cutout Current Rating	100 amps	100 amps	100 amps	100 amps
<u>Manufacturer</u>	<u>Catalog Numbers</u>			
Chance	C71D-112PB Series	C71D-112PB Series	C71D-112PB Series	C71F-211PB Series
General Electric	9F80	9F80	9F80	9F80
Joslyn	J9237-P2	J9237-P2/R	J9237-P2-R	J9267-D2
McGraw-Edison	AFS300B Series	AFS300C Series	AFS300C Series	AFS301D Series
Southern States	CA Series	CA Series	CA Series	CA Series
Westinghouse	7.8LBU-II/ 10 LV	15LBU-II/ 10 LV	15LBU-II/ 10 LV	24.9LBU-II/ 18 LV

NOTE: The units listed on this page may be used with single arresters or arresters in parallel, but must be applied in accordance with paragraph VI.A. in REA Bulletin 61-3, "Underground Rural Distribution." Other arresters listed on pages ae-1 and ae-2 may be used for underground systems when applied in accordance with this bulletin.

Cutouts used on underground riser poles should be loadbreak type or have hooks for portable load interrupters.

Either normal duty or heavy duty distribution class arresters listed on page ae-1 are acceptable for use with these combination units.

U gk - Terminations, Outdoor
(With mounting hardware)*

(When ordering specify conductor size, type, whether
copper or aluminum, insulator diameter, and type
of mounting desired)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Elastimold (ESNA)</u>		
Style 16-THG (15 and 25 kV)	921(6/26/69)	To obtain experience.
Style 35-MT (35 kV)	945(6/11/70) 1098(9/23/76)	
<u>General Electric</u>		
Termi-Matic, Type G (15, 25 and 35 kV)	938(3/5/70) 914(3/20/69) 1083(2/5/76)	To obtain experience.
<u>Joslyn</u>		
"Easy-On II" (15, 25 and 35 kV)	1111 3/31/77	To obtain experience.
<u>3M</u>		
5900 Series	966	To obtain experience.
15 kV (4/0 AWG and larger)	5/6/71	
25 kV (#2 AWG thru 750 kcmil)	969	
"Quick-Term" 5800 Series	6/17/71	
bracket mounted,	1054	
15 kV (#2 AWG thru 3/0 AWG)	11/27/74	
MT Series		
15 kV (4/0 AWG and larger)	1083	
25 kV, 35 kV	2/5/76	
"Quick-Term II" Series (15, 25 and 35 kV)	1238(7/15/82)	
<u>ITT Blackburn</u>		
Type MP (15, 25 and 35 kV)	1043(6/13/74) 1166(6/21/79)	To obtain experience.

*Mounting hardware is used to attach termination to mounting bracket
(U hd or U hj).

Conditional List

U gk(1.2)

April 1983

U gk - Terminations, Outdoor
(With Mounting Hardware)*

(When ordering specify conductor size, type, whether
copper or aluminum, insulation diameter, and type
of mounting desired)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Raychem</u> Thermofit HVT (15, 25 and 35 kV)	1054 11/27/74	To obtain experience.
<u>Bishop</u> SWO Kit (15, 25 & 35 kV)	1109 3/3/77	To obtain experience.
<u>G & W</u> "Eliminator" 15 kV, E 25 kV, E 35 kV, E	1150(11/2/78) 1166 6/21/79 1251(1/20/83)	To obtain experience.
<u>RTE</u> Fasterm Series (15 & 25 kV)	1162 4/26/79	To obtain experience.
<u>Sigmaform</u> Q-Cap Series STK (15 & 25 kV)	1212 5/21/81	To obtain experience.

*Mounting hardware is used to attach termination to mounting bracket
(U hd or U hj).

U gn - Enclosures, equipment

Sectionalizing Enclosures

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Carolina Dielectrics</u> Model 0501	994 6/29/72	To obtain experience.
<u>Continental Columbus</u> CW200 Series CW300 Series	969(6/17/71) & 987(3/16/72)	To obtain experience.
<u>Durham</u> Mini-Section Low Profile I, Low Profile III and Tri- Section Series	1077 11/13/75	To obtain experience.
<u>Electrical Equipment</u> LPT-228-P LPT-249-P 3Ø LPT-266-P 3Ø	1103 12/2/76	To obtain experience.
<u>Nordic</u> ND series	A1255 3/24/83	To obtain experience.
<u>Western Power Products</u> Model 24-1 Model 34-2 Model SPM-320 1Ø Model SPM-540 3Ø	966 5/6/71 1136 4/6/78 1209(4/2/81)	To obtain experience.
<u>Willow</u> WT-130 WT-248 WT-364 *WT-130 PM *WT-248 PM **WT-248 XM **WT-364 XM	1038 4/4/74	To obtain experience.

*For pole mounting.

**For crossarm mounting.

NOTE: The above enclosures are available with various multipoint terminations. The owner should specify termination points to be provided.

Conditional List

U gn(3)

April 1983

U gn - Enclosures, equipment

Sectionalizing Enclosures

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Malton Electric</u>		
MEJ Series	1045(7/11/74)	To obtain experience.
ME Series	1108(2/17/77)	
	1130(1/5/78)	
MEH Series	1167(7/12/79)	
<u>Vertex Plastics</u>		
1826B, 1Ø	1045	To obtain experience.
1826C, 1Ø	7/11/74	
1881, 3Ø	1110(3/17/77)	
<u>Gerard</u>		
Mod-Brk		
6-115-000	1047	To obtain experience.
6-125-000	8/8/74	
6-315-010		
6-115 Series***		
6-125 Series***		
<u>Inter-Alloys</u>		
15 kV and 25 kV	1051(10/10/74)	To obtain experience.
Primary terminal pedestals	1133	
PP Series, 1Ø and 3Ø	2/16/78	
*PP-PM Series, 1Ø and 3Ø		
<u>Fargo</u>		
15 kV and 25 kV	1068(6/26/75)	To obtain experience.
UP-400	1074(9/25/75)	
<u>Galva-Closure Products</u>		
Series AG	1132	To obtain experience.
Series BB	2/2/78	
<u>Hoffman</u>		
U-J Series junction enclosures	1135	To obtain experience.
	3/23/78	
U-JGS Series ground sleeves	1147	
	9/14/78	
<u>Utility Products Co.</u>		
PPB (15 & 25 kV)	1162(4/26/79)	To obtain experience.
<u>Wheelock and Son</u>		
Single phase	1252	To obtain experience.
Three phase	2/3/83	

*For pole mounting

**For crossarm mounting

***Available with surge arresters

U he - Enclosures, Sectionalizing Equipment

<u>Manufacturer</u>	<u>Meeting No. and Date</u> <u>14.4/24.9 kV</u>	<u>Conditions</u>
<u>G & W</u> PLDR, PFLDR (submersible and pad-mounted) single-phase and three-phase, fused or unfused switchgear (Choice of deep well or deadbreak bushings) (must specify pentahead security bolt when ordering)	1200 11/20/80	To obtain experience

NOTE 1: Enclosures on this page must comply with the deadfront requirements of REA Specification U-4.

NOTE 2: Single-pole switching of three-phase underground circuits may cause ferroresonance. Refer to REA Bulletin 61-3.

Conditional List

U he(3)

April 1983

U he - Enclosures, Sectionalizing Equipment
(600 amp.)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>S & C</u>		
Mark III, Model PMH (with option G-7) 15-25 kV, 600 amp., three-phase switching and 200 amp. single-pole switching	1112(4/14/77) 1198(10/23/80) 1202(12/18/80)	To obtain experience.
Fully enclosed live parts at all times, Model PME-15-25 kV, Three-phase switching and 200 amp single pole switching	1254 (3/3/83)	To obtain experience.
<u>RTE</u>		
Type LBS, single and three phase, pad-mounted 15 kV	1095 8/11/76	To obtain experience.
<u>Trayer</u>		
800 Series, pad-mounted three phase vacuum switching equipment, 200 and 600 amps., 15-25 kV with or without fusing	1160 3/29/79	To obtain experience.
501 submerisble vacuum fuse enclosure, deadfront 200 or 600 amp., 15-25 kV	1160 3/29/79	
Type SSA (submersible, fused and unfused) 200 and 600 amp., 15-25 kV	1034 1/31/74	
<u>Chance</u>		
Type LVS (submersible and pad- mounted) single phase and three phase, vacuum switching equipment, fused or unfused, 200 or 600 amp., 15-25 kV	1074(9/25/75) 1108(2/17/77) 1202(12/18/80) 1211(4/30/81)	To obtain experience.
<u>Electrical Equipment</u>		
Type PSI 15 kV, 25 kV 600 amp, three-phase switching, and 200 amp, single-phase switching. (when ordering add suffix B-3)	1196 9/18/80	To obtain experience

NOTE 1: Enclosures on this page must comply with the deadfront requirements of REA Specification U-4.

NOTE 2: Single-pole switching of three-phase underground circuits may cause ferroresonance. Refer to REA Bulletin 61-3.

April 1983

U he - Enclosures, Sectionalizing Equipment
(600 amp.)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Joslyn</u> Type SG6 (submersible) three-phase switching equipment, 600 amp., 15 or 25 kV	1112 4/14/77	To obtain experience
<u>Kearney</u> Series QE, QEE, QEI (all with option D1) pad-mounted 15 kV, 600 amp three-phase switching and 200 amp single pole switching	1184 4/10/80	To obtain experience.
Series VE - pad-mounted, 15 kV and 25kV, single phase and three-phase vacuum switching, fused or unfused 200 or 600 amps	1184 4/10/80	To obtain experience.
Series VP - submersible, single phase and three- phase, vacuum switching, 200 or 600 amp, 15 and 25 kV, with or without VACOP remote operator	1184 4/10/80	To obtain experience.
General Electric Series PSB (pad-mounted) and SSB (submersible) three-phase switching equipment, 200 or 600 amp., 15 or 27 kV	1022 8/2/73	To obtain experience.

Note 1: Enclosures on this page must comply with the deadfront requirements of REA Spec. U-4.

Note 2: Single-pole switching of three-phase underground circuits may cause ferroresonance. Refer to REA Bulletin 61-3.

U hg
July 1982

U hg - Anti-tamper Shield

Manufacturer

Catalog No.

Formed, Plastics

7262 Series

McGraw-Edison

UM8Y1

Sonoco

S24 Series

July 1982

U hp - Terminations, Elbow
(Rated for switching on three-phase systems)

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Kearney</u>		
15 kV, Loadbreak with voltage test point 1115-FC Series	1005 12/7/72 1077 11/13/75	To obtain experience.
<u>RTE</u>		
15 kV, Loadbreak SBT IV 2604600B Series with test point 2604599B Series without test point	1032 12/20/73 1122 9/8/77	To obtain experience.
25 kV, Loadbreak SBT 2604740B Series with test point 2604741B Series without test point	1148 3/28/78	
<u>Elastimold (ESNA)</u>		
15 kV, Loadbreak without voltage test point Style 165-LR	1068 6/26/75	To obtain experience.
15 kV, Loadbreak with voltage test point Style 166-LR		
25 kV, Loadbreak without voltage test point Style 271-LR		
25 kV, Loadbreak with voltage test point Style 272-LR		
<u>General Electric</u>		
15 kV, Loadbreak 9U01A--4-- Series	1133	To obtain experience.
25 kV, Loadbreak 9U01B--5-- Series	2/16/78	
<u>ITT Blackburn</u>		
15 kV, Loadbreak JT2B (without test point)	1054 11/27/74	To obtain experience.

Conditional List
U hp(5)
April 1983

U hp - Terminations, Elbow
(Rated for switching on three-phase systems)

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Burndy</u>		
15 kV, Loadbreak		
LBT112M (without test point)	1162(4/26/79)	To obtain experience.
LBT112MT (with test point)	1165(6/7/79)	
25 kV, Loadbreak		To obtain experience.
LBT262M (without test point)	1240	
LBT262M (with test point)	8/12/82	
15 kV, Fused Loadbreak	1251	To obtain experience.
SPF-T (with test point)	1/20/83	

January 1983

U hv - Cable, Underground

600 Volt Multi-Conductor Cable

Applicable Specification: REA Specification U-2

Conductor : Copper, #4 AWG and larger

: Aluminum, #2 AWG and larger

Insulation : Cross-linked polyethylene (XLPE)

<u>Manufacturer</u>	<u>Type Insulation</u>	<u>Type Conductor</u>	<u>Cable Configuration</u>
Alcan	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
Alcoa	XLPE	Aluminum	3 Insulated Conductors Triplexed
Anaconda Ericsson	XLPE	Copper or Aluminum	3 Insulated Conductor Triplexed
Essex	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
General Electric	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
Hatfield	XLPE	Copper	3 Insulated Conductors Triplexed
Kaiser	XLPE	Aluminum	3 Insulated Conductors Triplexed
Okonite	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
Pirelli	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
Reynolds	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
Rome Cable	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
Southwire	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed
Triangle	XLPE	Copper or Aluminum	3 Insulated Conductors Triplexed

NOTE: The above cable may be supplied with UL label for Type USE.

Conditional List

U hv(1)

April 1983

U hv - Cable, Underground
(15 or 25 kV cable)

TREE RETARDANT

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Reynolds</u> Reynotree-U (DFDA C202-1)	1151(11/16/78) 1196(9/18/80) 1255(3/24/83)	To obtain experience
<u>Rome Cable</u> Treban 100 HMW DFDA-6202 HMW	1146(8/31/78) 1196(9/18/80) 1155(1/18/79) 1196(9/18/80)	To obtain experience
<u>Hendrix</u> DFDA 6202 HMW	1151(11/16/78) 1198(10/23/80)	To obtain experience
<u>Alcoa</u> DFDA 6202 HMW	1148(9/28/78) 1198(10/23/80)	To obtain experience
<u>Pirelli</u> DFDA-6202 HMW	1152(12/7/78) 1202(12/18/80)	To obtain experience
<u>Essex</u> DFDA 6202 HMW	1236(6/10/82)	To obtain experience.

April 1983

U hy - Splice, Underground, Permanent

(When ordering specify conductor size, type, whether copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>AMP</u> "Amfact Splice" (35 kV)	1126(11/3/77)	To obtain experience
<u>Elastimold (ESNA)</u> Style 1500S, straight splice, through #1/0 (15 kV)	1135(3/23/78)	To obtain experience
Style 25-S, straight splice, #2/0 through #4/0 (15 kV)	1135(3/23/78) 873(7/27/67)	
Style 25-Y, Y-splice (15 kV)	921(6/26/69)	
Style K-25-S, straight splice (25 kV)		
Style K-25-Y, Y-splice (25 kV)		
Style M-250-S, straight splice (35 kV)	1134(3/2/78)	
<u>Burndy</u> Type PMS152 Straight Splice (15 kV) #4 through #1/0	1251(1/20/83)	To obtain experience.
<u>ITT Blackburn</u> Type S4B (15 kV) Type S4C (25 kV)	1160 3/29/79	To obtain experience
<u>3M</u> "Quick Splice II" 5411, 5412 (15 kV) (#2 Awg thru #4/0 Awg)	1194(9/4/80)	To obtain experience
"Quick Splice" 5400 series (15 kV) (250 kcmil thru 750) 5420 series (25 kV)	969(6/17/71) 1024(8/30/73) 1032(12/20/73)	

Conditional List

U hy(1.1)

April 1983

U hy - Splice, Underground, Permanent

(When ordering specify conductor size, type, whether
copper or aluminum and insulation diameter)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>RTE</u>		
15 kV - 2606780A Series straight splice	1122 9/8/77	To obtain experience.
25 kV - 2606825A Series straight splice		
35 kV - 2603934B Series straight splice	1058 2/6/75	
<u>Somerset</u>		
<u>Straight splices</u>		
Style 15 DHS (15 kV)	1014	To obtain experience.
Style 25 DHS (25 kV)	4/12/73	
Style 35 DHS (35 kV)		
<u>General Electric</u>		
15 kV Straight Splice through #1/0, Model 9U16A_100 (15 kV)	1255 3/24/83	To obtain experience.
"Uni-Matic" #2/0, Model 9U06A (15 kV)	977 10/14/79	
"Uni-Matic" Through #2/0, Model 9U06A (25 kV)	977	

July 1982

U ja - Transformer Pad

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Carolina Dielectrics</u> Model 0502-1 Fiberglass Size: 40" x 44"	1000 9/14/72	To obtain experience.
<u>Chance</u> C107-0162 and C107-0171 Fiberglass Size: 40" x 44"	994 6/29/72	To obtain experience.
<u>Heil Rotomold, Inc.</u> T Series* High density polyethylene	1228 2/4/82	To obtain experience.
<u>Highline</u> HL-46B, Fiberglass Size: approx. 42" x 42"	989 4/13/72	To obtain experience.
<u>Plastic Structures</u> No. 40402012 Molded polyethylene Size: 40" x 40"	997 7/27/72	To obtain experience.
<u>Thermodynamics</u> Poly-Pad, PR Series* Molded polyethylene	998(8/17/72) & 1009(2/1/73)	To obtain experience.
<u>Carlton</u> Composolite - PH Series	1141 6/15/78	To obtain experience
<u>Cyclo</u> Dwg. No. 730126-2 Molded polyethylene Size: 42" x 42"	1147 9/14/78	To obtain experience
<u>Associated Plastics</u> API 4000 Series RPM	1191 7/24/80 1194 9/4/80	To obtain experience

*Order by catalog number and size.

Conditional List

U ja(1.1)

April 1983

U ja - Transformer Pad

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Power Line Hardware</u>		
T-4242	1158	To obtain experience.
Molded polyethylene	3/1/79	
Size: 42" x 42"		
<u>Formex</u>		
Model TP-REA	1159	To obtain experience.
Molded polyethylene	3/15/79	
<u>Major Frame-Crete</u>		
ETPP precast	1166	To obtain experience.
cellular concrete	6/21/79	
42" x 42"		
<u>Smith Cattleguard</u>		
Easi Set T. Series	1187	To obtain experience
Precast Reinforced	5/22/80	
Concrete		
<u>Nordic</u>		
TP series	1255	To obtain experience.
Fiberglass	3/24/83	

Conditional List

U ja(2)

April 1983

U ja - Transformer Pad (Sleeve)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Concast</u> Fibercrete modular bases	1125(10/21/77)	To obtain experience.
<u>Highline</u> Box pad HL-45A Size: L-43", W-34½", D-32"	1002 10/12/72	To obtain experience.
<u>Continental Columbus</u> CW-GS-P Series	1164 5/24/79	To obtain experience.
<u>Formex</u> Transformer pad and box assembly TP-REA Series Pad 1730-A Series Box	1164 5/24/79	To obtain experience.
<u>Jackson Tank</u> BP-2000	1164 5/24/79	To obtain experience.
<u>Associated Plastics</u> Transformer pad and box assembly, API 4242 RPM Pad 1730 Box	1194 9/4/80	To obtain experience
<u>Nordic</u> GS series Fiberglass	1255 3/24/83	To obtain experience

*Order by catalog number and size.

Conditional List

U jb

July 1982

U jb - Splice Shield
(Refer to Drawing UM45-4)

<u>Manufacturer</u>	<u>Meeting No. and Date</u>	<u>Conditions</u>
<u>Kellems</u> No. SE 594-2	1035 2/21/74	To obtain experience.

April 1983

*DC Voltmeter with Built-In Half Cell

<u>Manufacturer</u>	<u>Type</u>	<u>Description</u>
Electronics Systems Design	CP600	Corrosion Potential Meter (0 to 1.999 volts dc digital)

*Corrosion test instrument - DC potential

